STREAM CLASSIFICATIONS AND STANDARDS
DRAFT RECOMMENDATIONS

The following stream segments will need to be addressed at the Rule Making Hearing scheduled for March, 2001. The UAA is still under development, therefore these recommendations should be considered preliminary; they should be used as a map of the issues to be discussed further in March. At that time final recommendations will have a strong scientific basis of support.

Segment 3a

Classifications: No change

Standards: Site-specific standards for Cd, Mn, Zn will be based on trout toxicity studies (DOW) and achievable levels determined by the remediation work group. An ambient standard of 130 ug/l (November through March) is proposed for Al. TVS are proposed for all other metals.

Rationale: The ambient standard for Zn was disapproved by EPA in 1998 because it exceeded the acute TVS and insufficient evidence was presented to support an alternate standard. The purpose of the Animas UAA is to determine practicable levels of Cd, Mn, and Zn consistent with aquatic life present or achievable in the segment. The ambient standard proposed for Al is less than the acute TVS criterion, and is appropriate because the UAA has shown the primary source of dissolved Al in the segment is natural.

Segment 3c—Arrastra Gulch

Create a new segment—Arrastra Gulch including all lakes, tributaries, and wetlands from the source to the confluence with the Animas River.

Classifications: Recreation Class 2
Aquatic life class 2

Standards: The same standards for all metals as applied to segment 3a.

Rationale: This segment was overlooked in previous classifications and standards hearings. Mining activity occurred around the Silver Lake area, near the headwaters, until the early 1950's. Investigations by DMG (2000) did not identify significant source loading from mining features. However electrofishing results from 1976 and 1998 confirm the stream does not contain fish. The 85th percentile concentration of Cd (1.4 ug/l) observed in Arrastra Gulch exceeds chronic TVS, and three of five dissolved Zn values

exceed acute TVS (The maximum observed was 200 ug/l). The chemistry of Arrastra Gulch is similar to other streams in segment 3a. Aquatic life class 2 recognizes existing aquatic life (macro-invertebrates). Site-specific standards for Cd and Zn will be based on trout toxicity studies (DOW) and achievable levels determined by the remediation work group.

Segment 4a

Classifications: Retain the aquatic life 2 classification
Remove the goal of aquatic life 1 classification

Standards: Site-specific standards for Cd, Cu, Mn, and Zn will be based on trout toxicity studies (DOW) and achievable levels determined by the remediation work group. Ambient standards (possibly seasonal) may be proposed for Al (750 ug/l), Fe (2700) and pH (5.5). TVS are proposed for all other metals.

Rationale: The ambient standard for Zn was disapproved by EPA in 1998 because it exceeded the acute TVS and insufficient evidence was presented to support an alternate standard. The purpose of the Animas UAA is to determine practicable levels of Cd, Cu, Mn, and Zn consistent with aquatic life present or achievable in the segment. The ambient standard proposed for Al equals the acute TVS criterion. The UAA has shown that the recommended standards for pH, Al, and Fe reflect the levels that commonly occur in the winter. Moreover, the acid water (low pH), dissolved Al and dissolved Fe in the segment are predominately from natural sources that originate in segments 7 and 8.

A recent study by Witter (1996) found that the transformation from dissolved to colloidal Al when waters with low pH mix with waters with high pH is a primary factor leading to mortality in brown trout. A similar condition was documented in segment 3b (Schemel,1998). Data collected at A72 since 1996 has shown that during the winter a combination of low pH and elevated levels of dissolved Al persists. This indicates that Segment 4a acts as a mixing zone consisting of higher pH waters from the Upper Animas mixing with low pH waters high in Fe and Al from Segments 7 & 8. Seasonal fluctuations in concentrations and pH result in colloid formation throughout the segment. Visual examination lends further support to this hypothesis. The persistant transformation of dissolved to colloidal Al is a major impediment to achieving full aquatic life uses in the segment. Fish are not present Segment 4a until after further dilution from its tributaries (Brook trout are first recorded below Molas Creek confluence). The overwhelmingly natural sources of Aluminum

and Iron identified through the UAA, arising from Segments 7 and 8, are expected to continue to preclude trout from inhabiting most of this stream segment.

The recommended aquatic life 2 classification and standards are proposed to protect the few existing benthic macro-invertebrate species

Segment 4b

Segment Description: End segment at Baker's Bridge

Classifications: No change

Standards: Adopt TVS (aquatic life) for all metals
Adopt temporary modification for Zn = 160 ug/l

Rationale: Gradual recovery of aquatic life has been observed below Elk Creek at the upper end of this segment. Recovery is expected to continue as additional remediation is implemented in the basin. Monitoring at Baker's Bridge since 1997 has shown that TVS for aquatic life are being met for all metals except Zn (Table 9.2g of the UAA). The proposed temporary modification for Zn is lower than the existing standard (182 ug/l), but continues to exceed TVS. If remediation continues in the upper basin, full aquatic life uses and table value standards should be attained in this segment.

Segment 5a

Segment Description: Move start of segment from Junction Creek to Baker's Bridge.

Classifications: No change

Standards: No change

Rationale: The Animas River exits the canyon downstream of Baker's Bridge. Urban, agricultural, and gravel mining replace metal mining as the predominate factors that affect water quality. The geomorphology changes from that of a predominantly high gradient, confined channel type to a low gradient broad valley with a braided to meandering channel type.

Segment 9b

Classifications: Reconsider the appropriateness of aquatic life class 1 for this segment

Standards: Site-specific standards for Cu, and Zn will be based on achievable levels determined by the remediation work group. Ambient standards (possibly seasonal) may be proposed for Al (2600 ug/l), Fe dis (3700) and pH (4.8). TVS are proposed for all other metals.

Rationale: The ambient standards for Cu and Zn were disapproved by EPA in 1998 because they exceeded the acute TVS and insufficient evidence was presented to support an alternate standard. The purpose of the Animas UAA is to determine practicable levels of Cu and Zn consistent with aquatic life present or achievable in the segment. Recent sampling for the UAA found no fish and very limited aquatic macroinvertebrates life in the segment.

The concentration of dissolved Al is more than three times higher than the acute TVS criterion. The UAA has shown that the recommended standards for pH, Al, and Fe reflect the levels that commonly occur in the winter. Moreover, the UAA has shown that the acid water (low pH), dissolved Al and dissolved Fe in the segment are predominately from natural sources that originate in segments 8.

A recent study by Witters (1996) found that the transformation from dissolved to colloidal Al when waters with low pH mix with waters with high pH is a primary factor leading to mortality in brown trout. This phenomenon was observed in upstream segment 3b, and data collected at M34 (mouth of Segment 9b) since 1996 has shown that it is a major problem at M34 and may be the major impediment to achieving aquatic life use in the segment.

REFERENCES

Witters, H. E., Van Puymbroeck, S., Stouthart, A. J. H. X., and Bonga, S. E. W. 1996. Physiochemical changes of aluminum in mixing zones: mortality and physiological disturbances in brown trout. Environmental Toxicology and Chemistry v. 15.

Excerpts from the Basis Standards

(a) Classifications should be directed towards the realization of the water quality goals as set forth in the federal and state Acts.

(b) It is state law and policy to prevent any water quality degradation that can interfere with present uses.

(c) Upstream classifications must not jeopardize downstream classifications or actual uses.

(d) Classification must protect all current classified and actual uses, unless it is determined after a public hearing that downgrading is justifiable. (See section 31.6(2)(b)).

(e) Classifications should be for the highest water quality attainable. Attainability is to be judged by whether or not the use classification can be attained in approximately twenty (20) years by any recognized control techniques that are environmentally, economically, and socially acceptable as determined by the Commission after public hearings. At a minimum, uses are deemed attainable if they can be achieved by the imposition of effluent limits required under the federal Act for point sources and cost-effective and reasonable best management practices for nonpoint source control, in accordance with duly adopted regulations.

(f) Relevant physical, chemical and biological characteristics are valid water quality concerns that may be taken into account in the classification process.

(2) Upgrading and Downgrading

(b) Downgrading
At a minimum, the state shall maintain those water use classifications currently designated, unless it can be demonstrated that the existing classification is not presently being attained and cannot be attained within a twenty (20) year time period. Nonattainability must be due to at least one or more of the following conditions:

(i) Naturally occurring pollutant concentrations prevent the attainment of the use within a twenty (20) year period; or

(ii) Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating state water conservation requirements to enable uses to be met; or

(iii) Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied within a twenty (20) year period or would cause

more environmental damage to correct than to leave in place; or

(iv) Dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water body to its

(ii) Ambient Quality-Based Standards
For state surface waters where the natural or irreversible man-induced ambient water quality levels are higher than specific numeric levels contained in tables I, II, and III, but are determined adequate to protect classified uses, the Commission may adopt site-specific chronic standards equal to the 85th percentile of the available representative data. Acute standards shall be based on table values or site-specific-criteria-based standards, and in no case may an ambient chronic standard be more lenient than the acute standard.

(iii) Site-Specific-Criteria-Based Standards
For state surface waters where an indicator species procedure (water effects ratio), recalculation procedure, use attainability analysis or other site-specific analysis has been completed in accordance with section 31.16(2)(b), or in accordance with comparable procedures deemed acceptable by the Commission, the Commission may adopt site-specific acute or chronic standards as determined to be appropriate by the site-specific study results. For segments assigned aquatic life classifications, where factors other than water quality substantially limit the diversity and abundance of species present, the Commission may adopt site-specific acute or chronic standards as determined to be appropriate based upon available information regarding the waters and the habitat. Recurrence intervals for site-specific-criteria-based standards may be determined on a site-specific basis. Site-specific-criteria-based standards and ambient quality-based standards for metals shall be based on dissolved metals whenever the Commission determines that the evidence presented is adequate to justify such standards. Site-specific standards for metals in effect prior to July 31, 1988 were generally based on total recoverable metals. Those standards shall remain in effect until superceded by revised standards promulgated pursuant to this section.

(iii) Class 2- Cold and Warm Water Aquatic Life
These are waters that are not capable of sustaining a wide variety of cold or warm water biota, including sensitive species, due to physical habitat, water flows or levels, or uncorrectable water quality conditions that result in substantial impairment of the abundance and diversity of species.

DRAFT

Use Attainability Analysis (UAA) Outline

3/05/00

Goal of UAA – To provide scientific analysis supporting recommendations concerning appropriate use classifications and standards for stream segments in the Upper Animas Watershed.

I. Introduction *(Butler)*
- A. Explanation of water quality concerns
- B. Need for UAA
- C. Triennial Reviews
- D. Descriptions of current segments, use classifications and standards
- E. Brief history of WQCC hearings

II. Protecting Existing and Potential Uses under Clean Water Act *(Butler)*
- A. Permits
  1. For point sources
  2. Stormwater permits
- B. Non-point source programs
- C. Enforcement of permits on abandoned mine sites
- D. Landowner Perceptions about permits and liability
- E. The Shadow of CERCLA - Liability Exposure
  1. Property Owners
  2. 3rd Parties

III. Addressing Water Quality *(Butler)*
- A. Description of Stakeholder process
  1. Who are the Stakeholders – non-exclusionary
  2. Collaborative working relationships between different gov't agencies and non-gov't entities
- B. Summary of extent of watershed characterization
- C. Summary of remediation efforts to date
  1. Consent decree – Sunnyside's work
  2. Remediation under Forest Service/BLM – AML Program
  3. MRCC
  4. Gold King
  5. Silver Wing
  6. Carbon Lakes
  7. Mammoth
  8. Etc.

IV. Area Overview *(Butler)*
- A. Physical description of the area
  1. Location
  2. Climate
  3. Geology
  4. Hydrology
  5. Ecology (Natural History)
- B. Mining History (Jones)
- C. Land ownership
- D. Past and current land uses, economy and community
- E. Cultural preservation

V. Identification of Existing Uses (these must be protected) *(Owens)*
   A. Aquatic life
   B. Water supply - wells
   C. Agriculture
   D. Recreation
   E. None

VI. Scientific Approach *(Butler/Simon)*
   A. Need for scientific approach in characterizing the watershed.
   B. Overall description of how the scientific studies compliment one another
   C. Rational and road map for understanding the information provided in the following sections.
   D. Summary of methods and protocol (details in appendices)

VII. Biological & Physical Analysis *(Biology workgroup)*
   A. Description of current health of aquatic species in each segment
      1. Trout & other fish
      2. Macroinvertebrates
   B. Description and condition of physical habitat for species
   C. Description of highest potential aquatic life given natural limiting factors
   D. Effects of metal loading on aquatic life
      1. Smothering of substrate
      2. Dissolved versus total concentrations
      3. Role of colloids
      4. Effects of Hardness
      5. Table value standards for metals

VIII. Metal Loading Processes
   A. Geologic setting of the Animas basin
   B. Chemical processes
      1. Production of acid water
      2. Leaching of metals
      3. Metals moving in and out of solution
      4. Attenuation
   C. Human activities that accentuate the chemical processes (Jones)
      1. Mining (portals, waste rock, tailings)
      2. Roads (recreation and tourism)
      3. Grazing
   D. Sediment data
      1. Data from pre-mining terrace sediments
      2. Data from oxbow lakes near Durango
      3. Eureka sediment information
   E. Historic mining practices
      1. Levels of production over time
      2. Type of recovery practices used
      3. Disposal practices used
      4. Specific events that may have affected metal loading
   F. Examples of sub-basin studies examining natural vs. human induced loading

IX. Existing Water Quality and Assessment of Sources of Water Quality Degradation *(Owens)*
   A. In-stream water quality
      1. Seasonal analysis by segments

3. Determine contaminants above table value standards (85th percentile)

B. Assessment of sources
   1. Mining
      a. Acid and neutral mine drainage
      b. Mine related waste (leachable metals and acid generating potential)
   2. Other human sources
      a. Roads
      b. Grazing
      c. Silverton WW plant
   3. Groundwater
      a. Natural springs and iron bogs
      b. Undifferentiated, mining and natural
   4. Sediments, colloids and metal availability

C. Load Analysis by Segments
   1. Mining related (no distinction made between reversible and irreversible, see section XII)
      a. Adits
      b. Dumps
      c. Mill tailing and smelter slag
   2. Other sources – roads, grazing, Silverton W.W. plant, stormwater load
   3. Groundwater
   4. Other unindentified sources including natural
      a. (potentially use some site specific examples of natural vs. human-induced loadings)
   5. Attenuation

X. Limiting Factors Analysis *(Biology workgroup, other stakeholders)*

A. Limiting Factors
   1. Chemical
   2. Physical
   3. Biological

B. Conditions necessary for sustaining desirable species in each segment

XI. Remediation *(Butler/Simon)*

A. Types of mining remediation
   1. Hydrologic controls
   2. Draining adit treatment
   3. Removal of mine wastes

B. Ways to control other sources of metals

C. Examples of mining remediation and associated costs

D. Magnitude of costs associated with different types of remediation and source controls

E. Effect of upstream remediation on targeted segments
   1. Geochemical modelling

XII. Remediation Scenarios and Costs *(Butler/Simon)*

A. Reversible vs. irreversible loadings

B. Reliability, cost-effectiveness, and feasibility of remediation activities to targeted segments

C. Prioritization of sites in different drainages

D. Anticipated load reduction

E. Cost/benefit analysis

XIII. Recommendations for Segmentation, Use Classifications and Standards *(All)*

A. Segmentation

B. Use classifications and standards based on table value stds, site specific stds, and/or

C. Temporary modifications and projected schedule for compliance

Appendices

A. Hydrological data – collection methods, locator maps for sampling and data
B. Assumptions and techniques used for modeling loads
C. Biomonitoring
D. Bioassessment
E. Toxicity
F. Biological habitat analysis
G. Limiting Factors Analysis
H. Site Characterization (3 reports, Div. of Minerals and Geology)
I. Remediation prioritization under watershed approach – Method and results
J. Description, costs and results of completed remediation projects
K. EPA letter to WQCC, 8/27/98

Table 9.1 Stream Segments Shown on CDPHE 1998 303(d) list

Segment	Description	Use Impaired	Constituent(s)
2	Animas above Eureka	Downstream aquatic life	Al, Cd, Cu, Fe, Pb
3a	Animas Eureka to Cement Ck	Aquatic life	Zn*
3b	Animas, Cement Ck to Mineral Ck	Downstream aquatic life	Al, Cd, Cu, Fe, Pb
4a	Animas, Mineral Ck to Elk Ck	Aquatic life	pH, Cu, Fe, Zn*
4b	Animas, Elk Creek to Junction Ck	Aquatic life	Zn
7	Cement Creek	Downstream aquatic life	Al, Cd, Cu, Fe, Pb
8	Mineral Creek above So. Mineral	Downstream aquatic life	Al, Cd, Cu, Fe, Pb
9b	Mineral, So. Mineral to Animas	Aquatic life	pH, Cu*, Fe*, Zn

* Standards were disapproved by EPA on August 27, 1998

Figure 1
Stream Segments for Animas River Upper Basin to Durango, Colorado

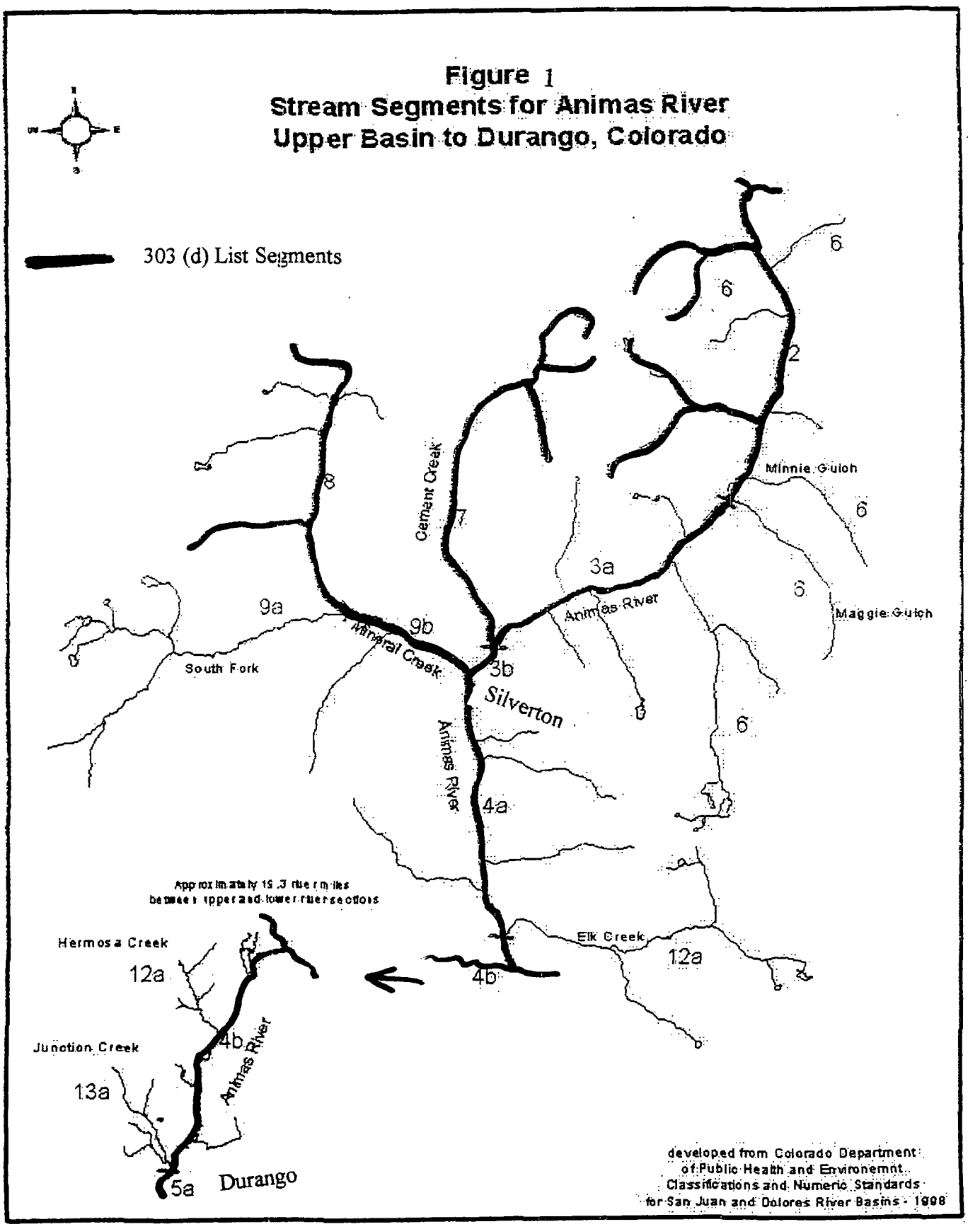


Figure 2
Existing Stream Classifications
Animas River - Upper Basin

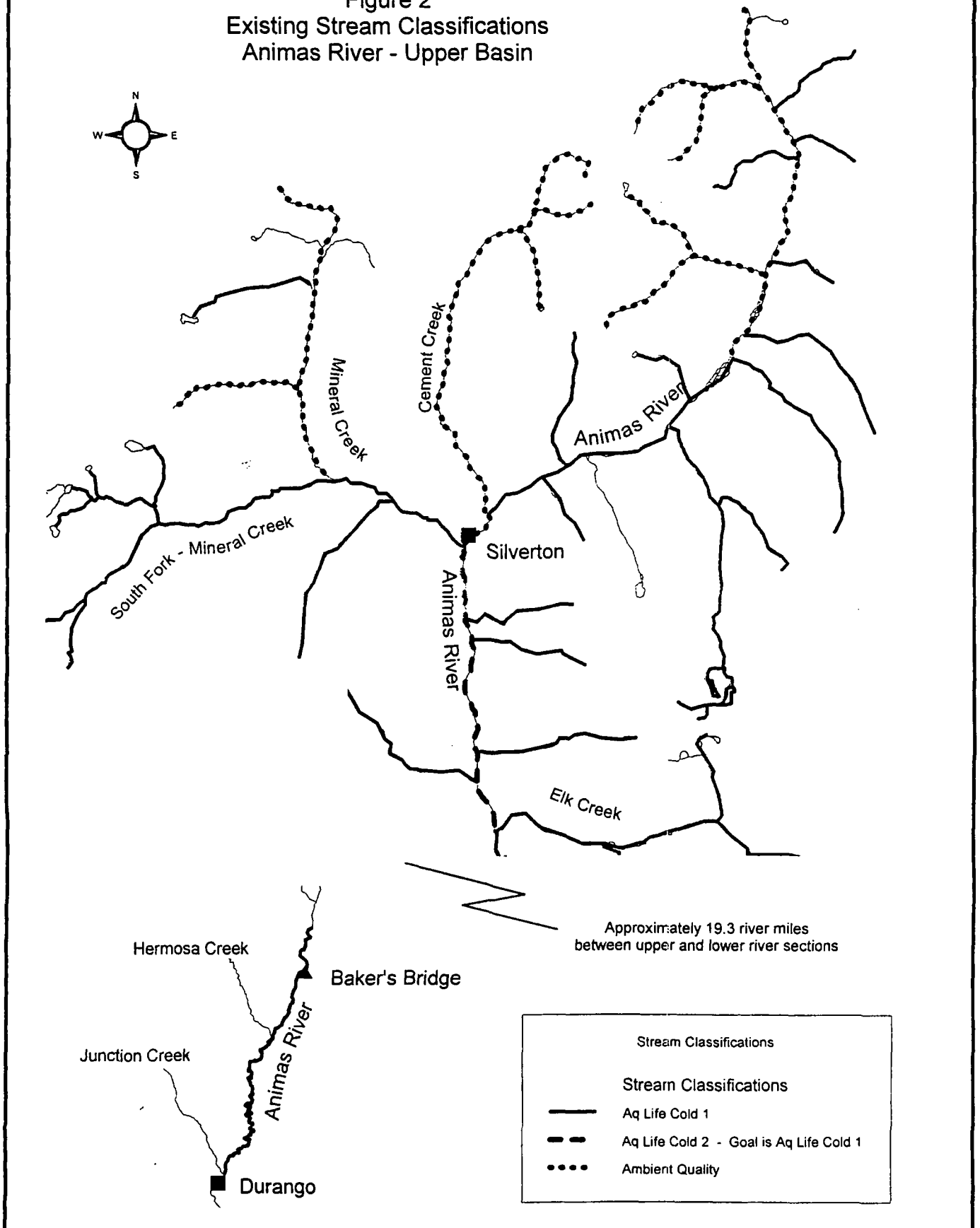


Figure 3
Proposed Stream Classifications
Animas River - Upper Basin

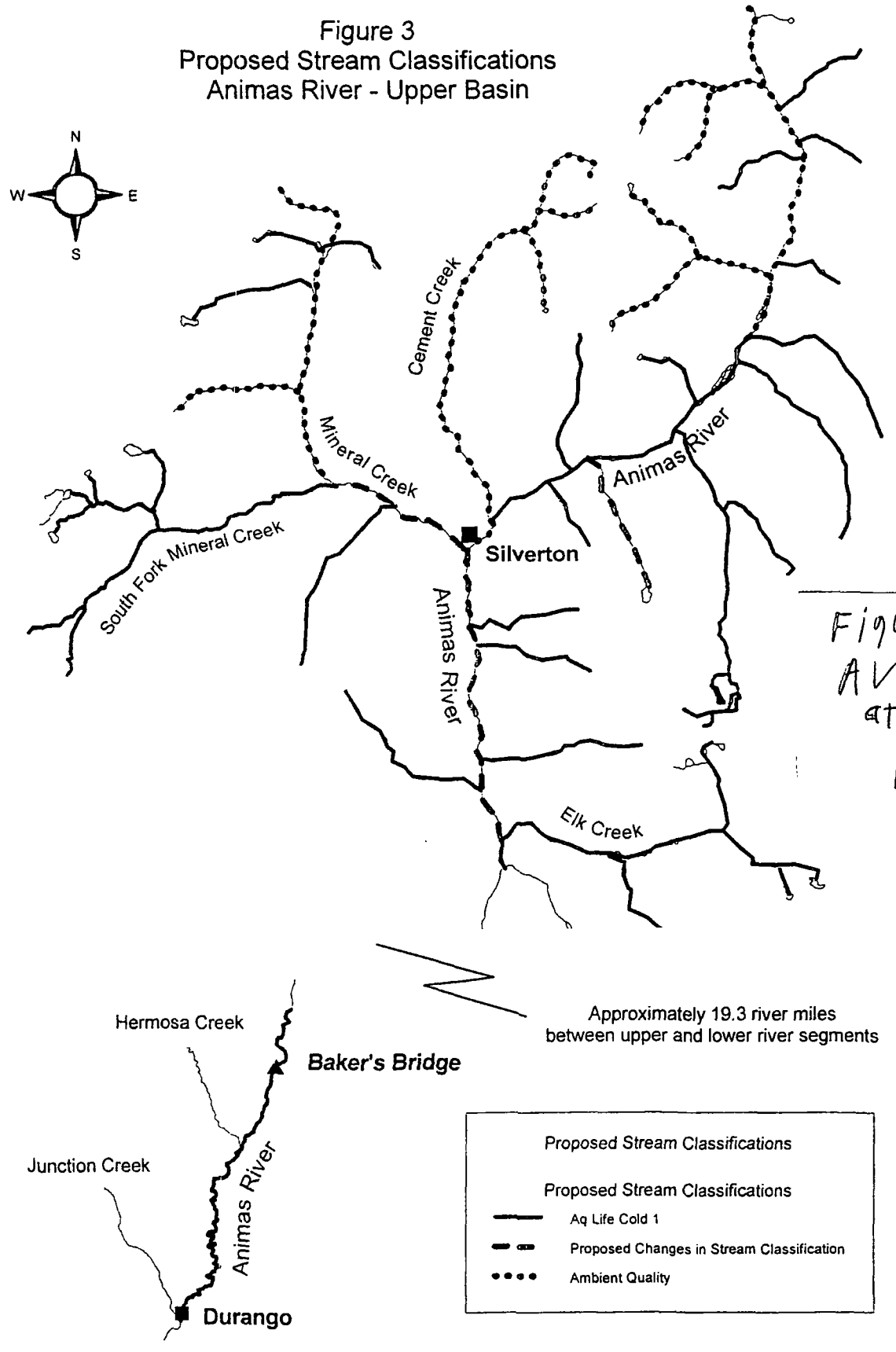
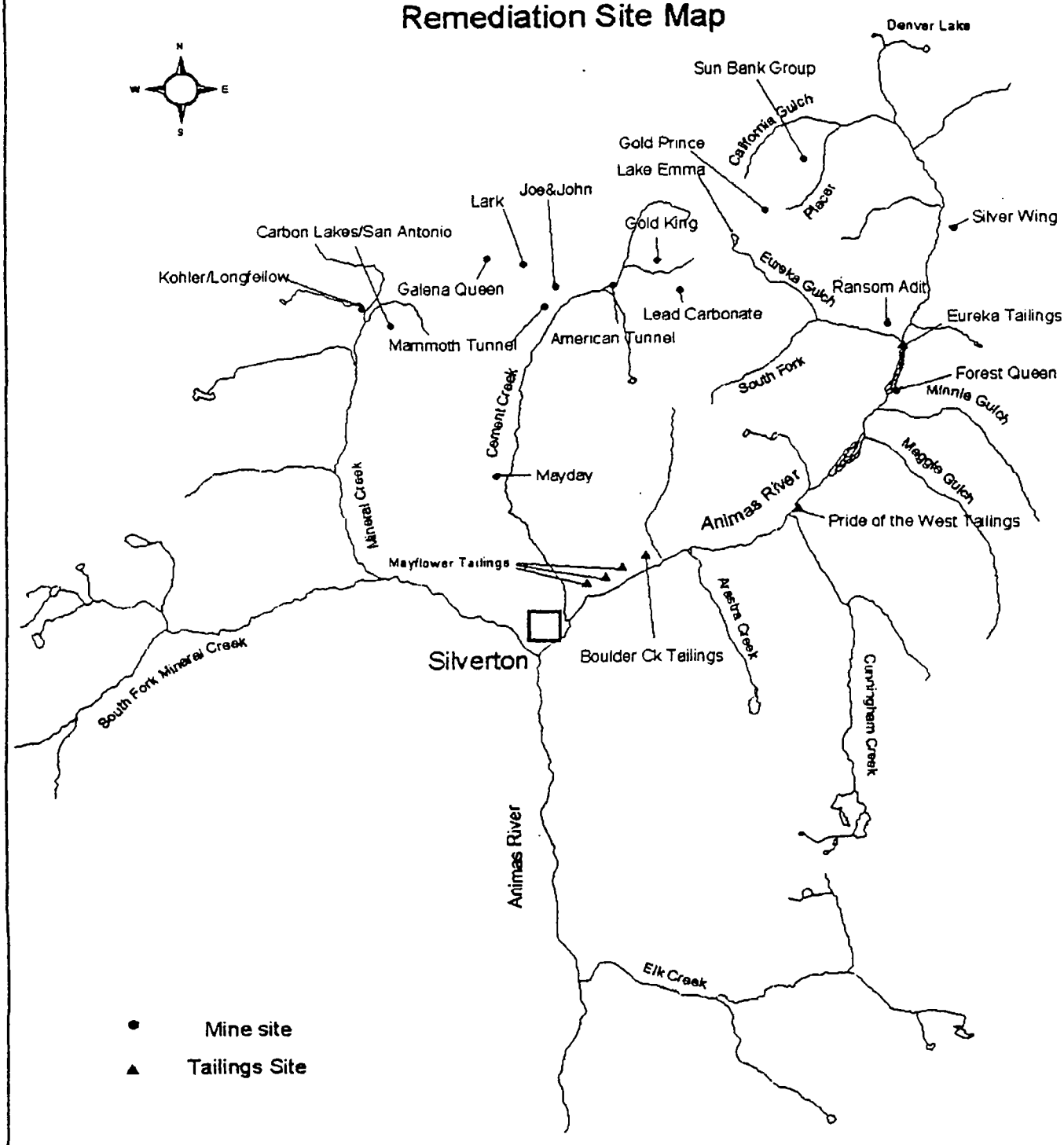


Figure 3
Available
at SOMS#
1060982

Figure 3-4
Remediation Site Map



Upper Basin Animas River
Silverton, Colorado

Upper basin layout - UAA

Figure 3-2
Summary of Remediaton Projects

(1) Project Sponsor	(2) Project Name	(3) Location	(4) Type of Remediation	(5) Project Timeframe	(6) Funding (incl. in-kind match)	(7) Improvements (actual or anticipated)
Sunnyside Gold Corp.	Lead Carbonate Millsite	Gladstone on bank of S. Fork of Cement Creek	Removal of 27,000 yards of tailings from streambank	Completed 1991	SGC: $163,000	Reduce loading of metals and erosion transport of tailings
Sunnyside Gold Corp.	Mayflower Mill – Tailings Ponds #1, #2 and #3	Mayflower Mill complex near Boulder Creek and Animas River	Re-contour inactive tailings ponds and cap. 625,000 yards of tailings and overburden moved.	Completed 1991-1992	SGC: $1,755,000	Mined land reclamation –reduce loading of metals and erosion transport of tailings
Sunnyside Gold Corp.	Lake Emma Sunnyside Basin	Sunnyside Basin headwaters of Eureka Creek	Fill mine subsidence, remove mine waste and re-contour disturbances. 240,000 yards moved.	Completed 1991-1993	SGC: $911,000	Mined land reclamation and reduce loading of metals
Sunnyside Gold Corp.	American Tunnel waste dump	Gladstone on bank of S. Fork of Cement Creek	Remove 90,000 yards of waste dump and underlying historic tailings	Completed 1995	SGC: $766,500	Mined land reclamation and reduce loading of metals and erosion transport of tailings
Sunnyside Gold Corp.	Eureka Townsite	Eureka on banks of Animas River and S. Fork of Animas and in flood plain	Remove 112,000 yards of tailings	Completed 1996	SGC: $843,000	Reduce loading of metals and erosion transport of tailings
Sunnyside Gold Corp.	Gladstone	Cement Creek treatment at Gladstone	Divert and treat Cement Creek to mitigate any short term impacts of reclamation projects	8/96-5/99, 11/99-12/99	SGC: $901,000	Reduce loading to Animas River to offset any short term impacts which could occur as a result of reclamation
Sunnyside Gold Corp.	Boulder Creek Tailings	Flood plain of Boulder Creek and the Animas River	Remove 5700 yards of tailings	Completed 1997	SGC: $32,500	Reduce loading of metals and erosion transport of tailings
Sunnyside Gold Corp.	Ransom adit	Eureka townsite above old mill foundation	Bulkhead seal to stop deep mine drainage and reclaim portal	Completed 1997	SGC: $85,400	Restore hydrologic regime and reduce rate of ore oxidation by placing mine workings under water to reduce metal loading

(1) Project Sponsor	(2) Project Name	(3) Location	(4) Type of Remediation	(5) Project Timeframe	(6) Funding (incl. in-kind match)	(7) Improvements (actual or anticipated)
Sunnyside Gold Corp.	Gold Prince mine waste and tailings	Headwaters of Placer Gulch	Bulkhead seals to stop deep mine drainage. Consolidate mine waste and tailings (moved 6000 yards) and construct upland diversions	Completed 1996-1997	SGC: $151,000	Reduce exposure to water to reduce metal loading
Sunnyside Gold Corp.	Longfellow-Koehler	Headwaters of Mineral Creek near top of Red Mtn. Pass	Remove Koehler dump (32,100 yards), consolidate Junction Tunnel dump and Longfellow dump and cap. Capture adit drainages. Construct diversions. Feasibility study of wetland treatment of Koehler drainage.	Completed 1996-1997	SGC: $580,000	Reduce metal loading and erosion transport of mine waste
Sunnyside Gold Corp.	Pride of the West tailings	Howardsville near confluence of Cunningham Creek with Animas River	Remove 84,000 yards of tailings	Completed 1997	SGC: $490,500 TUSCO: $14,000	Reduce metal loading and transport of tailings by erosion
Sunnyside Gold Corp.	Alkaline injection	Sunnyside Mine	Inject 652 tons of hydrated lime into the Sunnyside Mine pool to provide increased alkalinity and improve initial mine pool conditions	Completed 1996-1997	SGC: $313,000	Improve initial conditions as water table is restored through bulkheading to stop mine drainage
Sunnyside Gold Corp.	Mayflower Upland Hydrological Control	Mayflower Mill and TP #1 area near Silverton	Capture and divert three upland drainages that were going sub-surface up-gradient of the mill and TP #1 facilities	Completed 1998-1999	SGC: $186,000	Minimize potential for contact of runoff with tailings and reduce potential for metal loading
Sunnyside Gold Corp.	TP #4 drainage modification	Drainage ditch between Hwy. 110 and TP #4 near Silverton and Animas R.	Install lined diversion ditch to capture surface runoff and prevent infiltration through tailings material	Completed 1999	SGC: $72,000	Minimize potential for contact of runoff with tailings and reduce potential for metal loading
Sunnyside Gold Corp.	TP #4 upland groundwater diversion	Up-gradient from TP #4 near Silverton	Capture groundwater and divert around tailings impoundment	Completed 1993-1995, 1999	SGC: $409,000	Minimize potential for contact of groundwater with tailings and reduce potential for metal loading

(1) Project Sponsor	(2) Project Name	(3) Location	(4) Type of Remediation	(5) Project Timeframe	(6) Funding (incl. in-kind match)	(7) Improvements (actual or anticipated)
Sunnyside Gold Corp.	Sunnyside Mine hydraulic seal project	Sunnyside Mine	Bulkhead placement in Sunny-side Mine to restore hydrologic regime to approximate pre-mining and eliminate drainage from adits (6 bulkheads)	Completed 1992-1996	SGC: $2,346,000	Place mine workings under water to reduce oxidation, restore groundwater movement around mine workings and eliminate need for perpetual water treatment
Gold King Mines Corp	Gold King	Gladstone, N. Fork of Cement Cr.	Hydrologic controls for workings and mine waste	1998	Gold King: $117,300	Reduce metal loading to Cement Cr.
Silver Wing Mining Co.	Silver Wing	Animas river, about 1.5 mile above Eureka	Collect AMD, hydrological controls	1995	Silver Wing $7,000	Remove AMD from dump, reduce metals loading
Silver Wing Mining Co.	Silver Wing	Animas River, about 1.5 miles above Eureka	Anoxic Drain, settling pond, bioreactor	1999-2000	319 Funds: $216,000 Silver Wing: $144,000	Reduce metal loading to the Animas River.
Mineral Severance Taxes	Silver Wing	Animas River, about 1.5 miles above Eureka	Anoxic Drain, settling pond, bioreactor	1999-2001	$76,000	Reduce metal loading to the Animas River
San Juan RCD / (ARSG)	Carbon Lakes Mine Dump	Headwaters of Mineral Cr. East of Red Mtn. Pass	Removal of 1,900 cubic yards of waste rock from stream channel	Phase 1 – completed 1999	319 Funds: $72,000 ARSG match: $62,800	Reduce loading of metals especially Cadmium, Copper, Iron, Lead, Manganese, and Zinc
San Juan RC & D (ARSG)	Carbon Lakes Mine Waste Phase II Part 1	Headwaters of Mineral Creek East of Red Mtn. Pass	Complete removal of waste rock from stream channel	2000 season	319 Funds: $78,500 ARSG Match: $52,300	Reduce loading of metals to Animas River
San Juan RC & D (ARSG)	Carbon Lakes Mine Waste Phase II Part 2	Kohler Tunnel	Reduce flows from Kohler Tunnel by reducing infiltration into San Antonio Mine Workings	2000 season	319 Funds: $66,900 ARSG Match: $44,600	Reduce metals loading to the Animas River by reducing infiltration of water into old mine workings
Mining Remedial Recovery Co.	Sunbank Group	Placer Gulch	Anoxic drain, settling pond, waste consolidation, bulkhead	1995	319 Funds: $58,000 MRRC: 38,500	Raise pH from draining adit, reduce metal loading from adits and mine waste

(1) Project Sponsor	(2) Project Name	(3) Location	(4) Type of Remediation	(5) Project Timeframe	(6) Funding (incl. in-kind match)	(7) Improvements (actual or anticipated)
Salem Minerals	Mammoth Tunnel	N. Fork Cement Cr.	Settling ponds for mine drainage	1999	319 Funds: $10,050	Focused on reductions of iron to Cement Cr.
Mineral Severance Taxes	Mammoth Tunnel	N. Fork Cement Cr.	Settling ponds for mine drainage	1999	MST: $6,700	Focused on reductions of iron to Cement Cr.
Office of Surface Mining	Galena Queen	Prospect Gulch	Waste consolidation & hydrological controls	1998	Office of Surface Mining: $10,000	Reduce surface water leaching of toxic metals
BLM	Forest Queen	Eureka	AMD treatment	1997-98	$275,017	Reduced metals input into Animas
BLM	Mayday	Cement Creek	Storm water controls	1998	$10,000	Reduce surface water leaching of toxic metals
BLM	Mayday	Cement Creek	Cap dump	1999	$54,360	Reduce surface water leaching of toxic metals
BLM	Joe & John	Prospect Gulch	Mine drainage collection and diversion	1998	$39,980	Collect AMD for later treatment project development
BLM	Lark Mine	Prospect Gulch	AMD collection	1999	$19,725	
FS					$0	
Mineral Severance Taxes	Committed for Match to ARSG NPS 319 Projects	Animas Basin	Hydrological and/or Infiltration Controls	2000-01	$78,000	Used for non-federal match for demonstration projects funded primarily by NPS 319 program